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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/717,736	11/20/2003	Scott E. Black	03-1135	8708

74576 7590 12/02/2008

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EXAMINER	
LAU, TUNG S	

ART UNIT	PAPER NUMBER
2863	

MAIL DATE	DELIVERY MODE
12/02/2008	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/717,736	BLACK ET AL.	
	Examiner	Art Unit	
	TUNG S. LAU	2863	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *22 September 2008*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1 and 9-23* is/are pending in the application.

4a) Of the above claim(s) *18-23* is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1 and 9-17* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Election/Restrictions

1. Claims 18-23 stand withdrawn from further consideration by the examiner, 37 CFR 1.142(b), as being drawn to a non-elected invention as noted on 05/18/2006.

Continued Examination Under 37 CFR 1.114

2. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 09/22/2008 has been entered.

Claim Rejections - 35 USC § 102

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(a) the invention was known or used by others in this country, or patented or described in a printed publication in this or a foreign country, before the invention thereof by the applicant for a patent.

Claims 1, 9, 10, 11, 12, 13, 16, and 17 are rejected under 35 U.S.C. 102(a) as being anticipated by James Antaki, Brad E. Paden, Michael J. Piovoso, and Siva S. Banda (IEEE Control Systems Magazine, December 2002, page 8-20)

Regarding claim 1:

James Antaki, Brad E. Paden, Michael J. Piovoso, and Siva S. Banda describe a method of operating a product, comprising: monitoring operating parameters of a component of the product (page 13); monitoring system-level health of a system including the component (page 13); processing the operating parameters and the system-level health to determine health of the component including performing principal component analysis(PCA) (page 13)to provide a reduced set of data and using, the reduced set to determine a health assessment parameter for the component (page 13, 14); And reconfiguring at least one of the component and the system to compensate for the component during operation (page 16, 17, in flight) if the health assessment parameter indicates a degradation of the component (page 13, 14, 17).

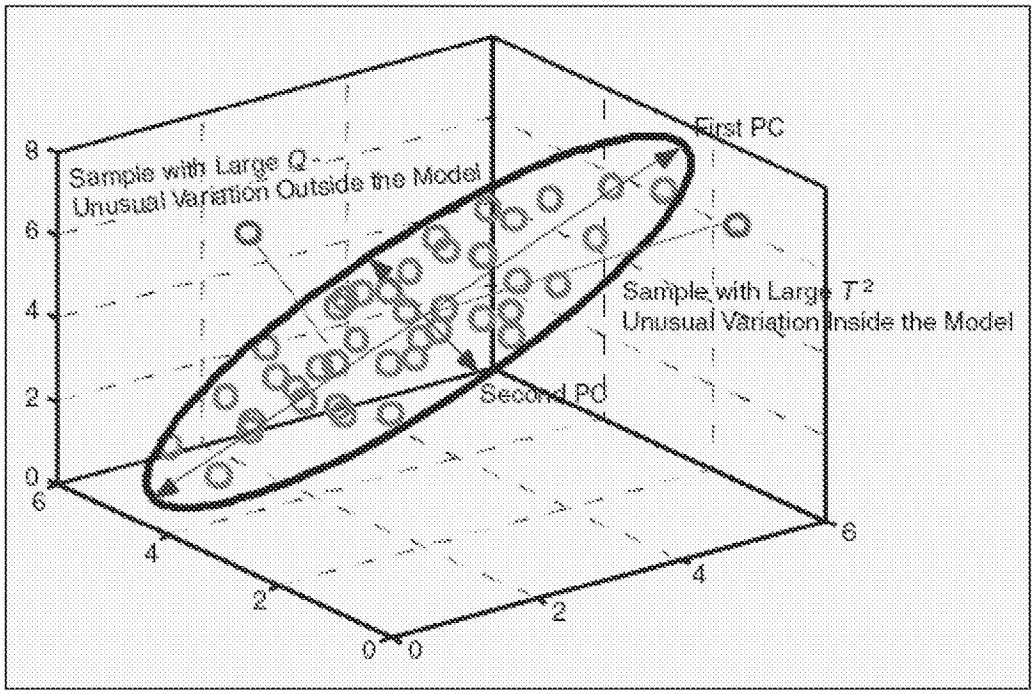

Figure 5. *An example of three-dimensional process data analysis with principal component analysis (PCA).*

Regarding claim 9, James Antaki, Brad E. Paden, Michael J. Piovoso, and Siva S. Banda further describe wherein the .product is an aircraft (fig. 10, 11) and wherein the system includes flight control system (page 16).

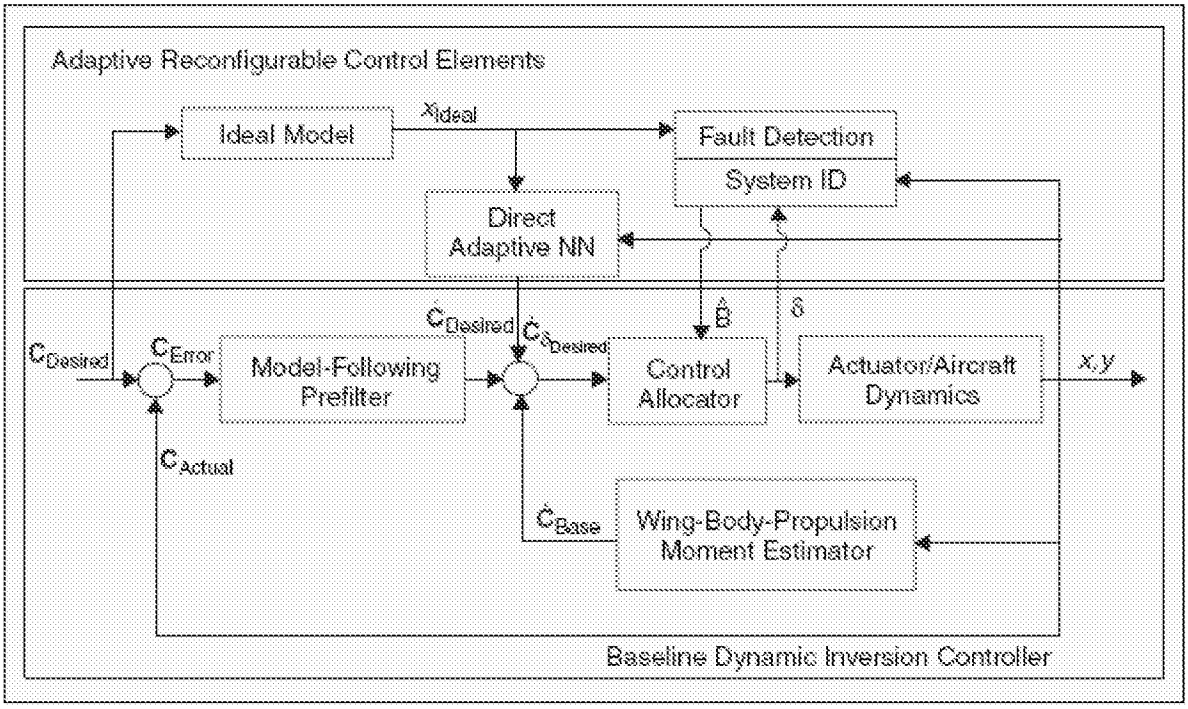

Figure 9. *Dynamic-inversion-based adaptive/reconfigurable control system.*

Regarding claim 10, James Antaki, Brad E. Paden, Michael J. Piovoso, and Siva S. Banda further describe wherein reconfiguring at least one of the component and the system includes reconfiguring the flight control system to take into account a degradation of an actuator (page 17).

Regarding claim 11, James Antaki, Brad E. Paden, Michael J. Piovoso, and Siva S. Banda further describe feeding back the reconfiguring (page 17) of the at least one of the component and the system into the processing of the operating parameters and the system-level health (page 14, 17, abnormal function).

Regarding claim 12, James Antaki, Brad E. Paden, Michael J. Piovoso, and Siva S. Banda further describe inputting the system and component health into maintenance support (page 13, 16).

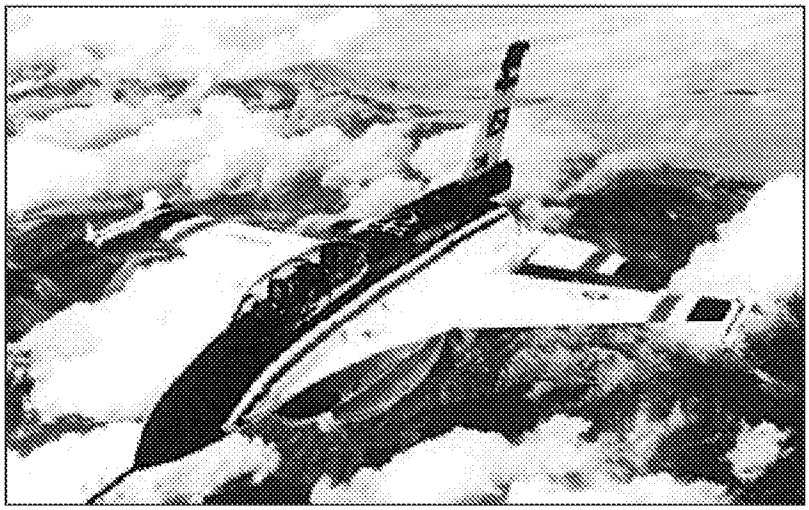

Figure 18. *The VISTA F-16 Variable Stability Aircraft demonstrated the ability to safely land with a malfunctioning horizontal tail. (Photo courtesy of U.S. Air Force.)*

Regarding claim 13, James Antaki, Brad E. Paden, Michael J. Piovoso, and Siva S. Banda further describe maintenance support block to includes at least one of enable post-flight analysis and interpretation, and prognosis of the component and system (page 13, 15, 16, history of flight condition).

Regarding claim 16, James Antaki, Brad E. Paden, Michael J. Piovoso, and Siva S. Banda further describe reconfiguring at least one of the component and the system includes reconfiguring at least one of the component and the system using an integrated vehicle health management system (page 13, 17).

Regarding claim 17, James Antaki, Brad E. Paden, Michael J. Piovoso, and Siva S. Banda further describe integrating an integrated vehicle health

management system with reconfigurable control (page 13, 17), and performing tests of at least one of the component and the system during actual operation of the product (fig. 10, 11, in flight).

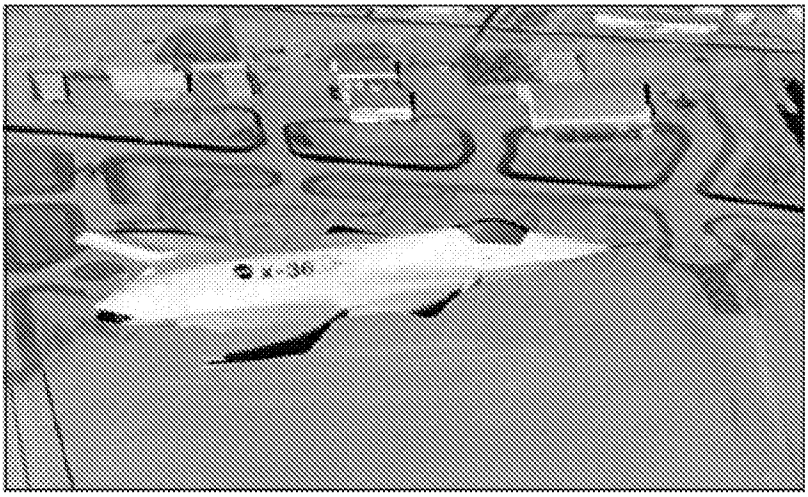

Figure 11. The Boeing X-36 Tailless Fighter Aircraft can recover nominal flying even with control effector or vehicle damage. (Photo courtesy of NASA.)

Claim Rejections - 35 USC § 103

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

a. Claims 14 and 15 are rejected under 35 U.S.C. 103(a) as being unpatentable over James Antaki, Brad E. Paden, Michael J. Piovoso, and Siva S. Banda (IEEE Control Systems Magazine, December 2002, page 8-20) in view of Raymond J. Anderson, McDonnell Douglas Corporation, St. Louis (Lab testing of neural

networks for improving aircraft onboard-diagnostics on flight-ready hardware, processing Annual Reliability and Maintainability Symposium 1993, 0149.144X/93, IEEE 1993, page 404-410)

Regarding claim 14, James Antaki, Brad E. Paden, Michael J. Piovoso, and Siva S. Banda further describes detecting a level of degradation of the component (page 13, 16)

James Antaki, Brad E. Paden, Michael J. Piovoso, and Siva S. Banda does not describes that can be used to reduce false alarms in a Built-In Test system.

Raymond J. Anderson can be used to reduce false alarms in a Built-In Test system (page 404), In order to reduce false alarm condition and improve reliability of the system (page 404).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify James Antaki, Brad E. Paden, Michael J. Piovoso, and Siva S. Banda to have the reduce false alarms in a Built-In Test system taught by Raymond J. Anderson In order to reduce false alarm condition and improve reliability of the system.

Regarding claim 15, James Antaki, Brad E. Paden, Michael J. Piovoso, and Siva S. Banda further describe the system above except the trending one or more degradations to provide a prognostic capability.

Raymond J. Anderson describes trending one or more degradations to provide a prognostic capability (page 405, 406), In order to reduce false alarm condition and improve reliability of the system (page 404).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify James Antaki, Brad E. Paden, Michael J. Piovoso, and Siva S. Banda to have the trending one or more degradations to provide a prognostic capability taught by Raymond J. Anderson In order to reduce false alarm condition and improve reliability of the system.

35 U.S.C. 103 authorizes a rejection where, to meet the claim, it is necessary to modify a single reference or to combine it with one or more other references. After indicating that the rejection is under 35 U.S.C. 103 (in light of KSR v. Teleflex, See MPEP 706.02(j)), the examiner should set forth in the Office action:

1. the relevant teachings of the prior art relied upon, preferably with reference to the relevant column or page number(s) and line number(s) where appropriate,
2. the difference or differences in the claim over the applied reference(s),
3. the proposed modification of the applied reference(s) necessary to arrive at the claimed subject matter, and
4. an explanation >as to< why >the claimed invention would have been obvious to< one of ordinary skill in the art at the time the invention was made.

James Antaki, Brad E. Paden, Michael J. Piovoso, Siva S. Banda and Raymond J. Anderson are analogous art because they are from the same field of endeavor, aircraft control diagnostic system. (MPEP 706.02(j))

Response to Arguments

5. Applicant's arguments with respect to the amended claims have been considered but are moot in view of the new ground(s) of rejection. However, applicant's arguments filed 09/22/2008 have been fully considered but they are not persuasive.

Contact information

6. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Tung S. Lau whose telephone number is 571-272-2274. The examiner can normally be reached on M-F 9-5:30. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Drew Dunn can be reached on 571-272-2312. The fax phone numbers for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

/Tung S. Lau/
Primary Examiner, Art Unit 2863
November 28, 2008